

REMARKS/ARGUMENTS

Claims 51-72 were previously pending in the application. Claims 52-53, 55-56, 58-61, 63-64, 66-67, and 69-72 are canceled; and new claims 73-90 are added herein. Assuming the entry of this amendment, claims 51, 54, 57, 62, 65, 68, and 73-90 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

On page 2 of the office action, the Examiner objected to the drawings. In response, the Applicant submits herewith a Transmittal of Corrected Drawing(s) amending Fig. 1 to address the Examiner's objection.

On page 3, the Examiner rejected claims 51-57, 59-68, and 70-72 under 35 U.S.C. 102(e) as being anticipated by Leyendecker. On page 6, the Examiner rejected claims 58 and 69 under 35 U.S.C. 103(a) as being unpatentable over Leyendecker in view of Meghdadi. For the following reasons, the Applicant submits that all of the now-pending claims are allowable over the cited references.

Claims 51 and 62

Claim 51 is directed to a lineariser for reducing distortion of an output signal of signal handling equipment, by processing a raw signal with data selected from a store in response to the amplitude and frequency content of the raw signal. In rejecting claim 51, the Examiner cited Fig. 6 and column 10, lines 16-39, of Leyendecker as teaching the invention of claim 51. For the following reasons, the Applicant submits that the Examiner mischaracterized the teachings in Leyendecker in rejecting claim 51.

As described in column 10, lines 16-39, Fig. 6 of Leyendecker shows a predistortion system having a single look-up table (i.e., LUT 603) that stores different sets of filter coefficients for predistortion filter 601. LUT 603 is accessed using a single read address that is derived from the instantaneous power or magnitude envelope of the current modulation signal sample.

Therefore, at most, Leyendecker teaches a lineariser for reducing distortion of an output signal of signal handling equipment (e.g., power amplifier 103) by processing a raw signal (e.g., the modulation signal) with data (e.g., the filter coefficients) selected from a store (e.g., LUT 603) in response to the amplitude (e.g., the instantaneous power or magnitude envelope) of the raw signal. Significantly, Leyendecker does not teach or even suggest that the filter coefficients are selected from LUT 603 in response to the frequency content of the modulation signal. As such, Leyendecker does not teach or even suggest all of the features recited in claim 51.

Meghdadi teaches a method for simulating a nonlinear amplifier, but has nothing to do with reducing the distortion generated by such an amplifier. As such, Meghdadi does not provide the teachings missing from Leyendecker.

For all these reasons, the Applicant submits that claim 51 is allowable over the cited references. For similar reasons, the Applicant submits that claim 62 is allowable over the cited references. Since claims 54, 57, 65, and 68 depend variously from claims 51 and 62, it is further submitted that those claims are also allowable over the cited references. The Applicant submits therefore that the rejections of claims under Sections 102(e) and 103(a) have been overcome.

Claims 54 and 65

According to claim 54, the store comprises a group of look-up tables, each table corresponding to a component of the raw signal having a different frequency or band of frequencies, and each table comprising a table of coefficients, each coefficient associated with a value of the amplitude of the component of the table. In rejecting claim 54, the Examiner cited Figs. 8 and 12 and column 14, lines 16-34, of Leyendecker as teaching the features of claim 54. For the following reasons, the Applicant submits that the Examiner mischaracterized the teachings in Leyendecker in rejecting claim 54.

According to column 11, lines 34-59, Fig. 8 shows a predistortion filter 800 having multiple LUTs 806₁-806_M. Significantly, however, these different LUTs do not correspond to different frequencies or different bands of frequencies in the modulation signal. Rather, they correspond to different memory effects, such as actual past power or magnitude envelope signals rather than the average of past power or magnitude envelope samples, or such as different filtered averages of past sample power or magnitude. See column 11, lines 51-59. Significantly, as explicitly shown in Fig. 8, each LUT is addressed using the same table address, which is based solely on the power or magnitude envelope of the modulation signal. This is very different from claim 54, where each LUT corresponds to a different frequency or band of frequencies and each LUT is addressed using the amplitude of a different component of the raw signal corresponding to a different frequency or band of frequencies.

The Applicant submits that this provides additional reasons for the allowability of claim 54 and similarly for the allowability of claim 65 over the cited references.

Claims 57 and 68

According to claim 57, a divider divides the raw signal into a number of components having different frequencies or bands of frequencies. In rejecting claim 57, the Examiner cited block 1201 of Fig. 12 and column 14, lines 16-34, as teaching the features of claim 57. For the following reasons, the Applicant submits that the Examiner mischaracterized the teachings in Leyendecker in rejecting claim 57.

According to column 13, lines 35 et seq., Fig. 12 shows trainer 431, where block 1201 of trainer 431 is a solver that generates the complex parameters used to update the LUT of the predistorter. See, e.g., column 13, line 66, to column 14, line 1. Nowhere in Leyendecker is there a teaching that solver 1201 or trainer 431 or, for that matter, any other component divides the modulation signal into a number of components having different frequencies or bands of frequencies. Note that the "bins" referred to in column 14 correspond to different quantized samples of the modulation signal and have nothing to do with the frequency content of the modulation signal.

The Applicant submits that this provides additional reasons for the allowability of claim 57 and similarly for the allowability of claim 68 over the cited references.

New Claims 73 and 82

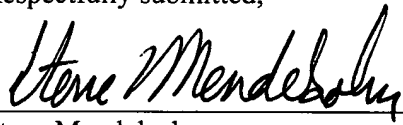
New claim 73 is directed to a method for reducing distortion in an output signal generated by signal handling equipment. In particular, a raw signal is divided into a plurality of raw components, each raw component having an amplitude and each raw component corresponding to a different frequency or band of frequencies. A modified component is generated for each raw component based on the amplitude of the raw component, and the plurality of modified components are combined to generate a modified signal. Support for new claim 73 is found, e.g., in Fig. 2 of the present application.

For reasons similar to those given in the previous sections, the Applicant submits that the cited references do not teach or even suggest such a combination of features. As such, the Applicant submits that new claim 73 is allowable over the cited references. For similar reasons, the Applicant submits that new claim 82 is allowable over the cited references. Since new claims 74-81 and 83-90 depend variously from claims 73 and 82, the Applicant submits that those claims are also allowable over the cited references.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

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